

B2 10. (Amended) Apparatus as claimed in claim 8 including means for varying the power of the laser for effecting reduction of the irregularity.

B3 12. (Amended) Apparatus as claimed in claim 11 including means for feeding back measurements of the irregularity as an output to thereby regulate the laser power, so that the irregularity is reduced to a predetermined amount.

B4 27. (Amended) Apparatus as claimed in claim 26 including means for feeding back measurements of the irregularity as an output to thereby regulate the laser power so that the irregularity is reduced to a predetermined amount.

REMARKS

Drawing Objections

In paragraph 1 of the Office Action, the Examiner objected to the drawings because of the reasons stated in PTO 948. PTO 948 indicated that the margins on the figures were incorrect and the lines numbers and letters were not uniformly thick and well defined, clean, durable and black (poor line quality). The Applicants have made corrections to the drawings to correct these errors and thank the Examiner for pointing these errors out. Therefore, the objections to the drawings should be withdrawn in light of the proposed corrected drawings.

Priority

In paragraph 3 of the Office Action the Examiner states that “the specification recites priority to two different US Provisional Applications SN 60/078,550 and 60/078,625...also noted that the second provisional Application has no common inventors with the instant Application.” This issue was addressed in the response to office action filed on March 18, 1999 of the parent application 09/272,183, for which this is application is a continuation. In that response, the Applicants remarked on page 3:

Please note that a new Declaration, signed by all of the inventors except Chiao-Ping Ku, is submitted herewith and deletes reference to claiming priority to Provisional Application No. 60/078,625. This reference was included in the original application in error. In regard to the nonsigning inventor Chiao-Ping Ku, a Petition to Accept New Declaration Under 37 C.F.R. § 1.64(a) and 37 C.F.R. § 1.47(a) is being submitted herewith.

The Applicants again delete the reference to claiming priority to Provisional Application No. 60/078,625 because this reference was included in the original application through error.

Claim Rejection Under 35 U.S.C. 112

In paragraph 3 of the Office Action, the Examiner rejects claims 1-14 and 27 under 35 U.S.C. 112 second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Claims 1, 6, 7, 8, 9, 10, 12, and 27 have been amended to overcome all of the Examiner's rejections in paragraph 3. In light of the amendment to claims 1, 6, 7, 8, 9, 10, 12, and 27, the Applicant respectfully requests that the Examiner withdraw this rejection.

Claim Rejection Under 35 U.S.C. 102(e)

In paragraphs 4 and 5 of the Office Action, the Examiner rejected claims 1, 3-8, 10-12, 16, 18-23, and 25-28 under 35 U.S.C. 102(b) as being anticipated by JP 60-219,637. The Examiner states that “JP 60-219,637 teaches a method and apparatus for cleaning and smoothing a surface of magnetic disks. The method comprises directing a laser light to irregularities to reduce them to a predetermined amount. The reference discloses the size of the regularities prior to and after the process. It means that the step of detecting and means for detecting are disclosed by the reference. The reference also discloses the use of different power of the laser. Since the irregularities are reduced it is inherent that the used power and time are sufficient to reduce the irregularities.”

The Applicants respectfully traverse. The Examiner’s statement that “it is inherent that the used power and time are sufficient to reduce the irregularities” is incorrect. Reference JP 60-219,637 teaches in the abstract that “Thus, the minute projections 2 are melted and softened, collide with the slider face of the burnish head 3 and are eliminated and then the surface of the magnetic disc 1 is smoothed.” Clearly, JP 60-219,637 teaches that the power and time are only used to melt and soften the projection and not to reduce the irregularity. In JP 60-219,637 the actual reduction of the irregularity is done with the burnish head 3. Contrast this statement with the claimed invention, as recited in independent claims 1 and 13, which state: “energizing the laser to thereby impart an energy source to reduce the irregularity to a degree less than a predetermined amount.” The claimed invention clearly does not suggest or imply that the burnishing head is used to reduce the irregularity as taught in JP 60-219,637.

Similarly independent claims 16, 23 and 28 state “energizing the laser upon the detector detecting an irregularity beyond the first predetermined amount to thereby impart a laser output at that irregularity to reduce the irregularity to a degree less than a second predetermined amount.” JP 60-219,637 does mention suggest or teach this element. In contrast, and as previously discussed, JP 60-219,637 teaches that the power and time are only used to melt and soften the projection and not to reduce the irregularity, as claimed in independent claims 16, 23 and 28.

The fundamental rules for determining anticipation is: “Under 35 U.S.C. § 102, anticipation requires that each and every element of the claimed invention be disclosed in a prior art reference” *Akzo N.V. v. U.S. Int’l Trade Comm’n*, 808 F.2d 1471, 1 USPQ2d 1241 (Fed. Cir. 1986), *cert. denied*, 482 U.S. 909 (1987). Since JP 60-219,637 does not disclose, mention or suggest “energizing the laser to thereby impart an energy source to reduce the irregularity to a degree less than a predetermined amount,” JP 60-219,637 does not anticipate the claimed invention. Therefore, the Applicants request the Examiner reconsider and withdraw his rejection of claims 1, 3-8, 10-12, 16, 18-23, and 25-28 under 35 U.S.C. 102(b).

Claim Rejection Under 35 U.S.C. 103(a)

In paragraph 9 of the Office Action, the Examiner rejected claims 2, 9, 17, and 24 under 35 U.S.C. 103(a) as being unpatentable over JP 60-219,637 in view of Kuo et al (IEEE Transactions on Magnetics, 32, No 5, 3753-3758), Baumgart et al (IEEE Transactions on Magnetics, 31, No 6, 2946-2951) and Engelsberg (US Patent No 5,024,968). The Examiner argues that JP 60-219,637 “is silent regarding whether or not

the used laser is a pulsed laser. However, the use of pulsed lasers was conventional for cleaning and modification as evidenced by Kuo et al, Baumgart et al, and Engelsberg.” Further in paragraph 10, the Examiner rejected claims 13, 14 and 29 under 35 U.S.C. 103(a) as being unpatentable over JP 60-219,637. The Examiner argued that JP 60-219,637 “is silent regarding the detailed construction of the focusing device and thereby fails to specifically recite the use of mirrors and optical fibers. However, the use of mirrors and optical fibers was notoriously well-known in the art to transfer light beams (including laser light beams) to the desired location.” The Applicants vigorously traverse.

In order to establish *prima facie* obviousness of a claimed invention three basic criteria must be met. First there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Third, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant’s disclosure. MPEP 2143.

The Examiner has not satisfied all three criteria outlined in MPEP 2143. In particular the Examiner has not given any motivation to combine the cited references other than “it would have been obvious to an ordinary artisan at the time the invention was made to use a pulsed laser in the method and the apparatus of JP 60-219,637 with reasonable expectation of adequate results in order to use conventional and readily available equipment because the use of the pulsed lasers was conventional for surface

cleaning and machining.” JP 60-219,637 does not use a laser to clean a surface but instead uses a laser to selectively heat certain parts of the surface, so that those parts can be burnished with a burnished head. One skilled in the art would **not have been motivated** to use pulsed lasers in combination with JP 60-219,637 for surface cleaning because JP 60-219,637 does not teach cleaning a surface with a laser but rather teaches selectively heating certain parts of the surface with a laser to soften a defect so that it can be burnished off.

Additionally, the prior art reference (or references when combined) does not teach or suggest all the claim limitations as is required for establishing *prima facie* obviousness. As previously discussed, the JP 60-219,637 reference neither teaches, suggests or implies that “energizing the laser to thereby impart an energy source to reduce the irregularity to a degree less than a predetermined amount,” as required in independent claims 1 and 13, nor teaches suggests or implies that “energizing the laser upon the detector detecting an irregularity beyond the first predetermined amount to thereby impart a laser output at that irregularity to reduce the irregularity to a degree less than a second predetermined amount,” as required in independent claims 16, 23 and 28.

Therefore, the Applicants submit that dependent claims 2, 9, 13, 14, 17, 24 and 29 are not obvious and respectfully request that the Examiner reconsider and withdraw his rejection of these claims under 35 U.S.C. 103(a).

In light of the above remarks, this application should be considered in condition for allowance and the case passed to issue. If there are any questions regarding these remarks or the application in general, a telephone call to the undersigned would be appreciated to expedite prosecution of the application.

Attached hereto is a marked-up version of the changes made to the claims by this amendment. The attached pages are captioned "Marked Up Version of Claims."

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Respectfully submitted,

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6/19/2003
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PATENT TRADEMARK OFFICE

Marked Up Version of Claims

1. (Amended) A method of cleaning a media surface comprising:

subjecting the surface to a detector for sensing [the nature of] the surface for an irregularity in the smoothness of the surface;

directing, on detecting an irregularity beyond a predetermined amount, a burnishing laser output to that irregularity; and

energizing the laser to thereby impart an energy source to reduce the irregularity to a degree less than a predetermined amount.

6. (Amended) A method as claimed in claim 5 including feeding back measurements of the irregularity as an output to thereby regulate the laser power so that the irregularity is [effectively] reduced to a predetermined amount.

7. (Amended) A method as claimed in claim 1 wherein the media surface is a [rigid] disc surface.

8. (Amended) An apparatus for cleaning a media surface comprising:

a detector for sensing [the nature of] the surface for an irregularity in the smoothness of the surface;

a burnishing laser for direction to that irregularity on detecting an irregularity beyond a predetermined amount; and

means for energizing the laser to thereby impart an energy source to reduce the irregularity to a degree less than a predetermined amount.

9. (Amended) Apparatus as claimed in claim 8 wherein the laser [output] is from a pulse laser.

10. (Amended) Apparatus as claimed in claim 8 including means for varying the power of the laser [output] for effecting reduction of the irregularity.

12. (Amended) Apparatus as claimed in claim 11 including means for feeding back measurements of the irregularity as an output to thereby regulate the laser power, so that the irregularity is [effectively] reduced to a predetermined amount.

27. (Amended) Apparatus as claimed in claim 26 including means for feeding back measurements of the irregularity as an output to thereby regulate the laser power so that the irregularity is [effectively] reduced to a predetermined amount.